SOLVAY
SODA ASH JOINT VENTURE

August 18, 1997

Bernie Dailey
WDEQ-Air Quality Division
122 W. 25th St.
Cheyenne, WY 82002

RE: Clarification of Modeling Results for Solvay Soda Ash Joint Venture's Air Quality Permit Application AP-W77.

Dear Bernie:

Following is information requested by WDEQ concerning the modeling results in Permit Application AP-W77. Some of the information requested will be forwarded to you directly from Woodward-Clyde Consultants, as noted.

VISCREEN:
As noted in Section 6.5 "Plume Visibility" pages 6-10 and 6-11 of the permit application, following EPA guidance, the five year meteorological data set for the VISCREEN model was analyzed to determine what conditions should be used in the Level Two analysis. To further explain, this procedure involves estimating the relative dispersion potential for each meteorological condition (defined by stability and wind speed) and summing the number of hours of occurrence of each meteorological condition. After eliminating all meteorological conditions that would require a travel time of greater than 12 hours for the plume to reach the Class I Area, a cumulative frequency is calculated and the worst one percent (as determined by the dispersion potential) is eliminated. The worst remaining meteorological condition is then used in the Level Two VISCREEN analysis. In addition, as recommended in the EPA Tutorial Package for the VISCREEN Model, stabilities were shifted one level less stable (i.e., D was changed to C) to account for the elevation change between the source and the Class I Area.

Solvay Soda Ash Joint Venture, Inc.
P.O. Box 1167, Green River, Wyoming 82935 307/875-6500 FAX: 307/872-6510

A summary of the results of the Level Two meteorological data processing is shown in the following table:

Results of Level-2 Meteorological Data Analysis for VISCREEN Modeling

	1 Percentile Meteorology		Altitude Adjusted	
Year	Stability	Wind Speed (m/s)	Stability	Wind Speed (m/s)
1987	D	6	C	6
1988	E	5	D	5
1989	D	5	C	5
1990	D	6	C	6
1991	D	4	C	4

Further details of each year's meteorological data and the VISCREEN Model outputs will be forwarded directly from Woodward-Clyde Consultants.

REGIONAL HAZE:

1. The meteorological data used in the Regional Haze model run was from 1987 - 1991, which are the same years used for the other modeling previously submitted for this permit application.
2. The emission inputs used for the Regional Haze model are the sum of the permitted particulate emission rates and the Method 202 backhalf organic emissions. A gross assumption was made that Method 202 backhalf organic emissions convert to secondary aerosols in the atmosphere after leaving the stack. (WDEQ requested this assumption be made for purposes of this model.) Therefore, in the Regional Haze model run, the Method 202 backhalf organic emissions are assumed to convert to secondary aerosols, and so, are modeled as particulate emissions.
3. The reported maximum concentration of 0.067 $\mu g/m^3$ at the wilderness boundary is a short term average of 24 hours; it includes particulate emissions and the Method 202 backhalf organic as explained above.
4. Supporting calculations for the maximum visibility impairment of 0.18 deciviews will be forwarded directly from Woodward-Clyde Consultants.

ACID DEPOSITION:

The supporting calculations for the acid deposition analysis will be forwarded directly from Woodward-Clyde Consultants.

UTM COORDINATES:

UTM coordinates of the model boundary will be forwarded directly from Woodward-Clyde Consultants.

MAXIMUM AND SECOND HIGH AMBIENT IMPACTS:
Table 6-1 on pages 6-2 and 6-3 of the permit application "Maximum Impacts from Emissions Due to Expansion" depicts the maximum modeled impacts. The PM_{10} impact is from both existing and proposed expansion sources, the other pollutant impacts include expansion emissions only. A revised table of PM_{10} ambient impacts including expansion sources only follows. The 24-hr high (H) and second highest (HSH) impacts as well as the maximum annual impacts are shown.

PM_{10} Impacts from Emissions Due to Expansion

Pollutant	Averaging Period	Rank	Year	Modeled Value
PM_{10} New Sources: AQD #s 74-85		H	1987	11.52
		H	1988	14.42
		H	1989	9.99
		H	1990	12.9
		H	1991	13.17
		HSH	1987	8.93
		HSH	1988	10.7
		HSH	1989	7.47
		HSH	1990	10.95
		HSH	1991	10.11
	Annual	--	1987	1.36
		--	1988	1.43
		--	1989	1.36
		--	1990	1.23
		--	1991	1.56

Table 6-2 on page 6-5 "NAAQS/WAAQS Compliance Demonstration" and Table 6-3 on page 6-6 "Class II PSD Increment Analysis" show the second highest 24-hour modeled impact. The second highest 24-hour impact is compared to the standards since one 24-hour exceedance is allowed annually (see Wyoming Air Quality Standards and Regulations; Section 3 (a) (ii) and Section 24 (b) (i) (A) (I)).

CUMULATIVE IMPACT:
A diagram depicting where the impact of PM_{10} becomes insignificant, showing no impact at neighboring facilities, will by forwarded directly from Woodward-Clyde Consultants.

REVISED "TABLE 3-13 EMISSION RATES"
A revised "Table 3-13 Emission Rates" is enclosed, showing the corrected emission rates as documented in previous correspondence concerning permit application AP-W77.

As you know, Solvay Soda Ash Joint Venture is proposing to begin construction of this project in early October 1997. To meet this deadline, the permit application must be ready for public comment by the first week of September. I appreciate the WDEQ's continued efforts to meet this important deadline.

If you have further questions, do not hesitate to contact me at (307) 872-6571. I will supply you additional information, if needed, as quickly as possible. I look forward to meeting with you in your office on Friday, August 22, 1997 to discuss the status of the permit.

Sincerely,

Dolly A. Potter
Environmental Engineer

Enclosures

cc: Ken Rairigh WDEQ-AQD
Lee Gribovicz WDEQ-AQD
David Gaige Woodward-Clyde Consultants

Table 3-13: Emission Rates (revision 1)

AQD #	PM_{10}		NO_X		SO_2		CO		VOC	
	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY	PPH	TPY
2a	1.6	7.01								
2b^	0	0.00								
6a	0.3	1.31								
6b^	0.51	2.23								
7	1.2	5.26								
10	0.6	2.63								
11^	0.21	0.92								
14^	0.37	1.62								
15	6.8	29.78	1.2	5.26					0.06	0.26
16	0.9	3.94								
17*	22.3	97.67	30	131.40			1524	6675.12	776	3398.88
18^	10	43.80	245	1073.10	70	306.60	17.5	76.65	0.5	2.19
19^	10	43.80	245	1073.10	70	306.60	17.5	76.65	0.5	2.19
20									0.02	0.09
24	0.3	1.31								
25	1	4.38								
26	1.1	4.82	0.05	0.22			0.07	0.31	0.01	0.04
27	0.5	2.19								
28	2.9	12.70								
30	0.2	0.88								
31	0.2	0.88								
33			1.5	6.57	0.4	1.75				
35	1.4	6.13								
36	0.1	0.44								
37	0.1	0.44								
38	0.1	0.44								
39	0.1	0.44								
41^	0.19	0.83								
43										
44	0.9	3.94								
45	0.2	0.88								
46^	0.71	3.11								
47^	2.9	12.70								
48*	9.3	40.73	15	65.70			762	3337.56	388	1699.44
50^	1.39	6.09								
51	4.8	21.02	18	78.84			2.4	10.51	0.28	1.23
52	0.5	2.19								
53^	0.9	3.94								
54	0.19	0.83								
55	0.4	1.75								
62	0.13	0.57								
63	0.17	0.74								
64	0.15	0.66								
65	0.06	0.26								
66	0.58	2.54								
67	0.47	2.06								
68	0.36	1.58								
70	0.27	1.18								
71	0.27	1.18								
72	0.07	0.31								
73	1.2	5.26	0.15	0.66	0.77	3.37				
MV							3.75	16.43	115	503.70
New Sources										
74	0.34	1.49								
75	0.34	1.49								
76	3.7	16.21								
77	0.22	0.96								
78	0.27	1.18								
79	0.21	0.92								
80	11.93	52.25	20	87.60			1047.8	4589.15	533.5	2336.73
81	1.74	7.62								
82	4.08	17.87	30	131.40			14	61.32	0.27	1.18
83	0.29	1.27								
84	0.59	2.58								
85	0.6	2.63	3.8	16.64	0.06	0.26	9	39.42	0.28	1.23
Total Existing Sources	88.90	389.38	540.90	2369.14	141.17	618.32	1976.69	8657.90	1061.15	4647.84
New Sources	24.31	106.48	53.80	235.64	0.06	0.26	1070.75	4689.89	534.05	2339.14
Modified Sources *			15.00	65.70			430.53	1885.72	219.22	960.18
Change	24.31	106.48	68.80	301.34	0.06	0.26	1501.28	6575.61	753.27	3299.32
Grand Total	113.21	495.86	609.70	2670.49	141.23	618.59	3477.97	15233.51	1814.42	7947.16

^ Sources with modified emission limits (to more closely reflect actual emissions).

* These emission changes are due to the increase in throughput and corrected NOX emission rate

NOX emission offset by contemporaneous reduction of actual emission totalling 596 TPY per MD-229.